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A Case of Sudden Death in *Decameron* IV.6 Aortic Dissection or Atrial Myxoma?

Fabrizio Toscano, Giovanni Spani, Michael Papio, Frank J. Rühli, Francesco M. Galassi

Giovanni Boccaccio's *Decameron* contains a novella that details the sudden death of a young man called Gabriotto, including a portrayal of the discomfort that the protagonist experienced and a rudimentary autopsy performed by local physicians. The intriguing description of symptoms and pathologies has made it possible to read a 7-century-old case through the modern clinical lens. Thanks to the medical and philological analysis of the text—despite the vast difference between modern and medieval medicine—2 hypothetical diagnoses have emerged: either an aortic dissection or an atrial myxoma.

Giovanni Boccaccio (1313–1375, Figure), widely known as the author of the *Decameron*, was one of the greatest writers of all time, rivalled in the Middle Ages only by the other two crowns of Italian literature, Dante Alighieri and Francis Petrarch. One of the earliest humanists and precursors of the Renaissance, Boccaccio became the father of European narrative prose with his masterpiece, the *Decameron*, a collection of 100 short tales that contains a kaleidoscope of human behavior. Chaucer and Shakespeare, among many others, eagerly borrowed from it, and the film industry has repeatedly returned to it for inspiration, even as recently as last year. Although the *Decameron* is a miscellany of fictional stories, Boccaccio's representation of the medieval human condition is never far from reality. A case in point is his description of the arrival in Florence of the Black Death, the infamous plague that wiped out as much as 60% of Europe's total population. Researchers of all kinds have turned to these pages for a variety of studies, whether literary, cultural, philosophical, historical, or even medical in nature.

Boccaccio, like his fellow citizens, had no doubt personally witnessed numerous cases of fatal disease and death, a fact that is obvious in his methodical descriptions of pathologies that brought some of his characters to their end. An

excellent example of what we may learn in Boccaccio's descriptions comes from the sixth story of the Fourth Day, set in the Northern Italian town of Brescia. Like a few others, it features the tragic end of a love story, this time between Andreuola, a young noblewoman, and Gabriotto, who belonged to a humbler social class. Their love affair ends in the death that concerns us here. The story begins one night when Andreuola has a dream in which she sees her lover suddenly overcome by an unknown "black and terrible substance" that issues from his body, forcibly envelops him, and mysteriously disappears with him underground. Concerned for Gabriotto's safety, she tells him about her vision, yet he simply pokes fun at her, claiming that it is totally ordinary to experience nightmares, especially after a heavy meal or when deprived of food. He then admits that he also had an equally worrisome dream the night before, in which he unexpectedly saw the arrival of a wild black dog that viciously attacked him and tore out his heart. Then, as the 2 lovers embrace, Gabriotto suddenly exclaims, "Oimé, anima mia, aiutami, ché io muoio" (*Dec.* 4.6.19: "Alas, my dearest, help me, for I am dying, 333"¹), and falls to the ground. He "simply lay there gasping for breath and perspiring all over, and shortly thereafter he gave up the ghost" (333). From the perspective of a physician, the details of Gabriotto's symptoms and behavior as he was dying potentially suggest a case of sudden death caused by something of cardiac origin. The story contains nothing about Gabriotto's family history that would lead one to infer an inherited congenital syndrome. Although clinicians may be tempted, on account of Gabriotto's young age and passionate love for Andreuola, to hypothesize coronary or cardiac disease as a consequence of sexually transmitted disease (syphilis may be ruled out because it reached Europe after the discovery of the Americas), nothing about promiscuity is deducible from Boccaccio's story. Consequently, we must turn our attention to an element introduced later in the novella. On the orders of the *podestà* (chief magistrate), certain doctors perform a presumably rudimentary examination, certifying the cardiac nature of Gabriotto's death and deliver their pathogenic verdict. Having found no evidence of foul play, they concluded that Gabriotto was dispatched by a pathological condition. Indeed, they claimed that "alcuna posta vicina al cuore gli s'era rotta, che affogato l'avea" (*Dec.* 4.6.33: "he had died a natural death from asphyxia, caused by the bursting of an abscess [*posta*] located in the region of his heart," 336). The Italian word *posta* (like its equally old synonym *postema*) is related to the archaic English term impostume and referred to an abscess or swelling. However, it could at times refer more generally to what we now think of as a tumor, as reported in certain private letters of the 14th century,² or as a sudden source of fatal internal bleeding, as seen with reference to the brain in a medieval

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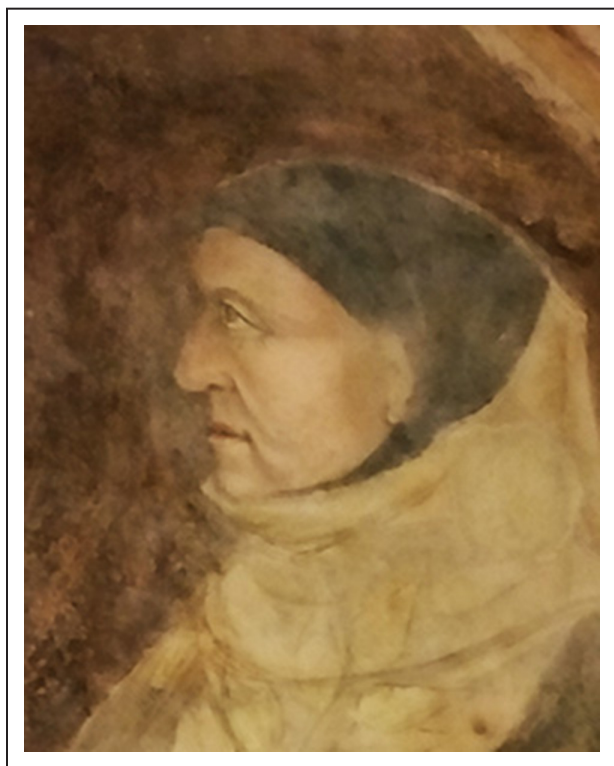


Figure. Giovanni Boccaccio (1313–1375). The portrait, recently found during the restoration of the Palazzo dell'Arte dei Giudici e dei Notai in Florence, dates back to the last years of his life. Image from Professor Michael Papio's private archive.

Bolognese book of medical treatments (dated 2 years after the arrival of the plague in Florence).³ Another case of unexpectedly rapid death, similar to our own, was reported by the 14th-century chronicler Donato Velluti: “ma credesi che per la caduta, non avendosi tratto sangue, ingenerasse postema, la quale si ruppe, e affogassela” (“it is believed that, since she did not undergo bloodletting, her fall caused the creation of an impostume, which burst and suffocated her”).⁴

Such being the evidence collected from the novel and contemporary usage, 2 main diagnoses seem to be most likely: Gabriotto's death may have been caused either by a thoracic-aortic aneurism or by an atrial myxoma. Epidemiological data, suggesting an incidence of 10 per 100 000 person-years and a substantially equal presentation among men and women, are reinforced by Boccaccio's word choice (*rotta*: broken/burst; *vicino al cuore*: near the heart; and *affogato*: choked/suffocated) and suggest aortic dissection. In addition, although aortic dissection is normally more common in elderly people, it has earned the well-deserved moniker of “the great masquerader,” insofar as it is capable of killing young adults with no family history of cardiovascular disease. The victim's symptoms may include syncope, pulse deficit, shock/tamponade, heart failure, and so on.⁵ Nonetheless, *posta* (impostume), as mentioned above, has a minority, though scientifically documented, history of meaning “tumor” in the Italian language, an observation that gives credit to the idea of a cardiac tumor or of a tumor situated near the heart. Furthermore, despite the mention of a rupture, nothing appears in the text about conspicuous blood

collection, which one would expect in the case of an obvious dissection of the thoracic tract of the aorta.

Primary cardiac tumors are extremely rare, with an incidence in autopsy series of 1 to 30 per 100 000.⁶ Myxoma is the most common sort, accounting for 50% of all primary cardiac tumors, with roughly 75% of them occurring in the left atrium. Symptoms and signs typical of this condition may range from the constitutional symptoms seen in ≈30% of patients (eg, fever, weight loss, and fatigue) to more specific cardiopulmonary problems, such as orthopnea, paroxysmal nocturnal dyspnea, and pulmonary edema.⁷ Among the causes of such symptoms, the obstruction of the heart valves is especially noteworthy. Cerebrovascular-derived neurological symptoms may additionally occur in the event that a left atrial tumor releases fragments (thrombi) into the systemic circulation.⁸ Sudden death in a patient with atrial myxoma, albeit an uncommon occurrence, cannot be excluded altogether. Published case reports discuss tumors that were large enough to cause narrowing and obstruction in the valvular area that led to cardiovascular collapse.⁹ Such sudden-death episodes may also occur, especially in the wake of vigorous exercise, in young male patients.¹⁰

Let us now return to the young man's nightmare. Gabriotto describes what he saw, thinking that:

uscisse non so di che parte una veltra nera come carbone, affamata e spaventevole molto nell'apparenza, e verso me se ne venisse, alla quale niuna resistenza mi pareva fare; per che egli mi pareva che ella mi mettesse il muso in seno nel sinistro lato e quello tanto rodesse, che al cuor perveniva, il quale pareva che ella mi strappasse per portarsel via. Di che io sentiva sì fatto dolore, che il mio sonno si ruppe. (Dec. 4.6.16–17)

a coal-black greyhound appeared as if from nowhere, starving with hunger and quite terrifying to look upon. It advanced toward me, and I seemed powerless to resist, for it sank its teeth into my left side and gnawed away until it reached my heart, which it appeared to tear out and carry off in its jaws. The pain of it was so excruciating that I came to my senses. (333)

His sleep had probably been interrupted by ≥1 of the symptoms we mentioned above, paroxysmal nocturnal dyspnea above all, that he hastily considered the effects of a nightmare. Indeed, he may have attributed the nociception on the left (cardiac) side of his chest to the oneiric beast's onslaught rather than to a rather more likely instance of atrial fibrillation, particularly when large atrial myxomas are present.¹¹ Immediately after speaking, as we have seen, Gabriotto starts feeling ill and finally falls to the ground: “Gabriotto non rispose, ma ansando forte e sudando tutto dopo non guari spazio passò della presente vita” (Dec. 4.6.21: “Gabriotto did not reply, but simply lay there gasping for breath and perspiring all over, and shortly thereafter he gave up the ghost,” 333). Such a description may suggest an adrenergic reaction to hypoxia caused by acute pulmonary edema, the final step in his sudden cardiac death. Given the context discussed above, atrial myxoma seems to be the likelier culprit, although other scenarios may not be discarded a priori.

Here at the close of this historical-clinical study, it is worth our while to remember that some working knowledge of cardiology was already present in the Middle Ages, as is evident in Dante's *Comedy*, which Boccaccio knew far better than most.¹² It would therefore not be surprising to discover that Boccaccio's scholarly acumen and encyclopedic memory might, therefore, have played a part in his portrayal of cardiac afflictions. As a matter of fact, such a technique would have dovetailed nicely with the self-same realism that his readers have admired for centuries. Although a single literary case study does not permit us to make diagnostic claims with absolute etiologic certainty, it seems certain that Gabriotto's dream and subsequent demise may be profitably reassessed in the light of modern medicine. Indeed, this sad tale could very well contain an authoritative medieval description of a sudden and deadly cardiac event, potentially of neoplastic or vascular origin.

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Disclosures

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